

WHAT IS CLAIMED IS:

1. A throttle valve apparatus for an engine, the throttle valve apparatus comprising:

a throttle valve, which controls an amount of air taken into the engine;

a throttle shaft, which rotates integrally with the throttle valve;

a rotative member, which is fixed to one end of the throttle shaft and rotates the throttle shaft; and

a throttle housing having:

a bore portion, which stores the throttle valve openably and closably; and

a projecting wall, which is disposed outside the bore portion and partially covers the one end of the throttle shaft, the throttle valve apparatus, wherein:

the throttle housing has a projecting portion, which projects outward from a peripheral surface of the projecting wall in a radial direction of the projecting wall; and

the projecting portion integrally has;

a full open stopper, which restricts rotation of the rotative member in its first rotational direction when the throttle valve is fully opened; and

a full close stopper, which restricts rotation of the rotative member in its second rotational direction, which is opposite to the first rotational direction, when the throttle valve is fully closed.

2. The throttle valve apparatus according to claim 1, wherein:  
the projecting portion has a reinforcing rib portion, which reinforces at least one of the full open stopper and the full close stopper; and

the reinforcing rib portion extends generally in a direction, in which the at least one of the full open stopper and the full close stopper receives a load from the rotative member.

3. The throttle valve apparatus according to claim 2, wherein:  
the throttle housing is one of a resin molded throttle housing, which is integrally made of a resin material, and a metal cast throttle housing, which is integrally made of a metal material; and

at least the projecting wall, the reinforcing rib portion, the full open stopper and the full close stopper of the throttle housing are formed in substantially uniform wall thicknesses.

4. A throttle valve apparatus for an engine, the throttle valve apparatus comprising:

a throttle valve, which controls an amount of air taken into the engine;

a throttle shaft, which rotates integrally with the throttle valve;

a rotative member, which is fixed to one end of the throttle shaft and rotates the throttle shaft; and

a throttle housing having:

a bore portion, which stores the throttle valve

openably and closably; and

a projecting wall, which is disposed outside the bore portion and partially covers the one end of the throttle shaft,

the throttle valve apparatus, wherein:

the throttle housing has a projecting portion, which projects outward from a peripheral surface of the projecting wall in a radial direction of the projecting wall;

the projecting portion has a full open stopper, which restricts rotation of the rotative member in its first rotational direction when the throttle valve is fully opened;

the engine has an engine side component to be airtightly connected with the throttle housing; and

the throttle housing is attached to the engine side component, so that one side of the projecting portion, which is opposite from the full open stopper, contacts the engine side component.

5. The throttle valve apparatus according to claim 4, wherein:

the projecting portion has a reinforcing rib portion for reinforcing the full open stopper; and

the reinforcing rib portion is disposed at least to be extended substantially in a direction in which the full open stopper receives a load from the rotative member.

6. A throttle valve apparatus for an engine, the throttle valve apparatus comprising:

a throttle valve, which controls an amount of air taken into

the engine;

a throttle shaft, which rotates integrally with the throttle valve;

a rotative member, which is fixed to one end of the throttle shaft and rotates the throttle shaft; and

a throttle housing having:

a bore portion, which stores the throttle valve openably and closably; and

a projecting wall, which is disposed outside the bore portion and partially covers the one end of the throttle shaft,

the throttle valve apparatus, wherein:

the throttle housing has a projecting portion, which projects outward from a peripheral surface of the projecting wall in a radial direction of the projecting wall;

the projecting portion has a full close stopper, which restricts rotation of the rotative member in its second rotational direction when the throttle valve is fully closed;

the engine has an engine side component to be airtightly connected with the throttle housing; and

the throttle housing is attached to the engine side component, so that one side portion of the projecting portion, which is opposite from the full close stopper, contacts the engine side component.

7. The throttle valve apparatus according to claim 6, wherein:

the projecting portion has a reinforcing rib portion for reinforcing the full close stopper; and

the reinforcing rib portion is disposed at least to be extended substantially in a direction in which the full close stopper receives a load from the rotative member.

8. The throttle valve apparatus according to claim 5, wherein:

the throttle housing is one of a resin molded throttle housing, which is integrally made of a resin material, and a metal cast throttle housing, which is integrally made of a metal material; and

at least the projecting wall, the reinforcing rib portion, the full open stopper and the full close stopper of the throttle housing are formed in substantially uniform wall thicknesses.

9. The throttle valve apparatus according to claim 1, wherein the rotative member is one of a throttle lever, which is fastened to the one end of the throttle shaft by a fastening member, and a valve gear, which is integrally formed in the one end of the throttle shaft.